

## STUDIES IN THE GESNERIACEAE OF THE OLD WORLD

### XII: OPITHANDRA, A GENUS WITH STERILE ANTICIOUS STAMENS

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Little reflection is needed to realize that when the stamens of tubular zygomorphic flowers are reduced in number it is most often the anticus pair which persist in a functional state. There are a number of exceptions in *Scrophulariaceae* (chiefly among the veronicoid genera), but the families *Labiatae* and *Acanthaceae* give considerable support to such views. There are about thirty-two diandrous genera of *Gesneriaceae* in the Old World and no fewer than thirty of them, including the large genera *Didymocarpus*, *Chirita*, *Streptocarpus* and *Boea* have the anticus pair as the fertile stamens. The exceptions are *Epithema* (3-6 species in Tropical Africa and Asia), and *Sepikaea* (one species in New Guinea). There is also one such genus in S. America, the monotypic *Sarmienta*. Their status as independent genera is unquestioned, and within the family they are not at all closely related to one another.

Just recently (in *Baileya*, iv, 161: 1956) I have briefly established a fourth genus with this characteristic, calling it *Opithandra* on that account. It is based on the plant which has been known for some time as *Oreocharis primuloides* (Miq.) C. B. Clarke. From *Oreocharis* it is distinguished by having only two fertile stamens, while from other diandrous genera, to which it has at one time or another been referred—namely *Boea*, *Didymocarpus* and *Chirita*—the fact that the fertile stamens are the postero-lateral pair sharply distinguishes it.

*Opithandra primuloides*, as it must now be called, does not stand alone. Five other species of the same general alliance share the feature of fertile posticus stamens; they are *Rottlera Fargesii* Franchet, *Chirita Dalzielii* W. W. Smith, *Chirita acaulis* Merrill, *Didymocarpus sinohenryi* Chun and a closely allied species not yet described. It is now proposed to associate all these with the erstwhile *Oreocharis primuloides* in the genus *Opithandra*.

It is not quite easy to express in words the interrelationship of this little group. In a general way they are fairly closely allied: all are rosette plants and have tubular flowers with only the posticus stamens fertile; the anthers are free or lightly coherent at their tips (never cohering face to face), and the anther loculi are not confluent. In leaf characters and in the form of the stigma, however, there is variation and it cannot be gainsaid that *Opithandra* is a somewhat artificial genus with the single character of fertile posticus stamens the one feature of paramount importance. It may well be suggested that these species have all been derived independently from different tetrandrous ancestors and, consequently that the genus *Opithandra* as here constituted is quite artificial. Alternatively it is possible to conjecture that here are the relict species of a genus once larger and

more widespread. Either view is speculative and choice between them is not of paramount taxonomic importance. The fact our taxonomy has to express is that here are five species of the same general affinity (that is belonging to *Gesneriaceae-Didymocarpeae*, and further to the rosette-forming members of that group); they differ from all other members of that affinity either because others have four fertile stamens or because they have the anterior pair fertile and the posterior pair sterile. That is an important morphological pattern which must be expressed and it is therefore considered that the association of these six species in the genus *Opithandra* is, with our present knowledge, justified and convenient. Should future work demonstrate that individual species are more closely allied with tetrandrous groups (*O. Dalzielii* with *Briggsia* is one possibility and *O. sinohenryi* with *Oreocharis* another), then the genus will stand for the Japanese *O. primuloides*, and its definition will become more precise in proportion to the materials excluded.

**Opithandra** B. L. Burtt in Bailey, iv (4), 162 (Dec. 1956).

*Herbae* subacaules, foliis rosulatis petiolatis aut piloso-pubescentibus aut subtus dense pannosis. *Inflorescentia* 1-pluri-flora, cymosa, pedunculis foliis longioribus, floribus (nisi solitariis) quaque furca inflorescentiae binis seriatim aperiens. *Bractae* parvae. *Calyx* ad basin in segmentis 5 plus minusve lanceolatis partitus. *Corolla* varie tubulosa, quinqueloba lobis (eis *O. acaulis* perparvis exceptis) in labia duo dispositis aut porrectis aut patentibus. *Discus* breviter cupularis. *Stamina* duo, postero-lateralia, tantum fertilia; filamenta recta vel leviter curvata; antherae liberae vel apice leviter cohaerentes (numquam coram applanatae), oblongae ad suborbiculares, linea recta vel curvata dehiscentes, loculis apice haud confluentibus. *Ovarium* cylindricum in stylo attenuatum; stigma in typo generis profunde et verticaliter bilamellatum, in speciebus aliis acutum vel punctulatum. *Fructus* capsularis.

Typus generis: *Opithandra primuloides* (Miq.) B. L. Burtt.

#### Key to the species

- 1a. Petioles pilose; leaves pilose or pilose-pubescent on both surfaces
  - 2a. Leaves smooth
    - 3a. Stigma included
      - 4a. Stigma deeply bifid vertically; corolla about 2.5 cm. long, tube slightly curved, limb oblique . . . . . 1. *primuloides*
      - 4b. Stigma pointed; corolla about 3.5 cm. long, tube inflated . . . . . 2. *Dalzielii*
    - 3b. Stigma exserted, punctulate; corolla less than 1 cm. . . . . 3. *acaulis*
  - 2b. Leaves strongly verrucose-bullate . . . . . 4. *Fargesii*
- 1b. Petioles pannose; leaves densely pannose on the lower surface, at least on the veins
  - 5a. Leaves densely pannose all over the lower surface . . . . . 5. *sinohenryi*
  - 5b. Leaves densely pannose only on the veins below . . . . . 6. *sp. nov.?*

1. *Opithandra primuloides* (Miquel) B. L. Burtt in Bailey, iv (4), 162 (1956).

Syn.: *Boea primuloides* Miquel in Ann. Mus. Lugd. Bat. iii, 190 (1807); Inuma, Somoku Dzusetsu, ed. 2, xi, t. 70 (1874).

*Didymocarpus primuloides* (Miq.) Maxim. in Bull. Acad. Petrop. xix, 535 (1874) et Mel. Biol. ix, 369 (1874); Franchet & Savatier, Fl. Jap. i, 328 (1875); Yatabe, Ic. Fl. Jap. i (3), tab. 46 (1893).

*Oreocharis primuloides* (Miq.) C. B. Clarke in DC. Mon. Phan. v (1), 63 (1883); Léveillé in Fedde, Rep. Sp. Nov. ix, 330 (1911); Inuma, Somoku Dzusetsu, ed. Makino, xi, t. 70 (1912); Makino, Ind. Fl. Jap. ii, 577 (1912); Burtt in Curtis, Bot. Mag. N.S. tab. 47 (1949) et in Notes R.B.G. Edinb. xxi, 185 (1954).

*Chirita primuloides* (Miq.) Ohwi in Journ. Jap. Bot. xii, 662 (1936).

JAPAN. Without locality, *Keiske* (holo. Leiden). Shikoku, Kochi, Tosa, Oct. 1889, coll. ? (P); Ochi, Tosa, 17 June 1892, coll. ?, U.S. Nat. Herb. 20641 (US); Iyo, 23 Aug. 1933, *I. Yogo* in Herb. Shiota 9461 (Gray); Ins. Azukijima in Iyo, 5 Oct. 1952, *M. Togasi*, Nat. Sci. Mus. Tokyo 622 (E).

2. *Opithandra Dalzielii* (W. W. Sm.) B. L. Burtt, **comb. nov.**

Syn.: *Chirita Dalzielii* W. W. Sm. in Notes R.B.G. Edinb. x, 171 (1918).

KWANTUNG. Thai-yong, 60 miles west of Swatow, 600 m., Sept. 1898, *J. M. Dalziel* 184 (holo. E).

3. *Opithandra acaulis* (Merrill) B. L. Burtt, **comb. nov.**

Syn.: *Chirita acaulis* Merrill in Lignan Sci. Journ. xiii, 47 (1934).

KWANTUNG. Tsengshing Distr., Naam Kwan Shan, shady place, flower pink, 25 Apr. 1932, *W. T. Tsang* 20331 (A, K).

4. *Opithandra Fargesii* (Franch.) B. L. Burtt, **comb. nov.**

Syn.: *Rottlera Fargesii* Franch. in Bull. Mus. Hist. Nat. Paris, v, 251 (1899).

E. SZECHUAN. Touan, dans la sous-prefecture de Ta-lui-hien, 1800 m., 19 Aug. 1896, *Farges* 1379 (holo. P).

5. *Opithandra sinohenryi* (Chun) B. L. Burtt, **comb. nov.**

Syn.: *Didymocarpus sinohenryi* Chun in Sunyatsenia, vi (3-4), 290 (1946).

KWANTUNG. Shi-Wan-Ta Shan, Hwang-Kwang Shan, 500 m., 19 July 1933, *C. L. Tso* 23446 (holotype—not seen); Shi-Wan-Ta Shan, 7 Aug. 1937, *H. Y. Liang* 70054 (A).

KWANGSI. Shang-sze Distr., Shap Man Taai Shan, Tang Lung Village, 8 Sept. 1934, *W. T. Tsang* 24243 (A, NY).

6. *Opithandra* sp. **nov.?**

KIANGSI. Lungnan Distr., Oo Chi Shan, near Lam Uk village, Oct. 1-25 1934, *S. K. Lau* 4622 (A, BM).

**Illustrations of Common French Flowers** (review).—This set of illustrations\* represents yet another attempt to meet the demand of elementary students for a simple means of recognizing and naming the plants they encounter on their field excursions; in this case it is designed to be used in conjunction with Bonnier & Layens, *Nouvelle Flore de la Région Parisienne*, which has dictated the general arrangement and nomenclature. Whether the demand for easy recognition is reasonable is very doubtful. Students must study, and the intention (avowed in the introduction) to avoid the use of the lens when in the field will never lead to a proper understanding of plants. Nor will the provision of sketches for recognition do anything to stimulate or maintain the students' interest.

However, if the objectives be accepted as valid, can they be said to be attained? The illustrations (to which brief annotations are added) cannot be called pleasing, on account of the coarse shading and rough draughtsmanship, but there is no doubt that most of the more distinctive species are easily recognized. Nevertheless there are a good many unsatisfactory pictures. For instance, the lack of any indication of scale suggests that *Potentilla sterilis* (pl. 62) has flowers as large as those of *P. reptans* and only a fraction smaller than those of *P. anserina*. On the other hand those of *Epilobium hirsutum* (pl. 69) are too small relative to the other species illustrated. The picture of *Sanicula europaea* (pl. 75) gives the impression of a far heavier, more robust inflorescence than this species really has, while it is surely misleading to have *Aegopodium podagraria* characterised as a waterside plant. Few grasses are shown, but it increases difficulties to draw only a flowering culm of *Poa annua* and *P. pratensis*, without indicating that the one is usually annual the other perennial. The figure of *Dactylis* would probably defy an expert, not to mention a student, while the student's problems in the Monocotyledons are not helped by having only *Juncus effusus* to represent the rushes, nor by the entire absence of *Carex*, *Scirpus*, *Agrostis* and *Festuca*. At least one plate each to give an idea of these genera should have been the minimum representation.

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\* Atlas pour la reconnaissance directe des plantes les plus communes. Madeleine Fourcroy. Paris, Editions N. Boubée & Cie, 1956. 190 planches. 1500 francs.